

What is claimed is:

1. A fuel vapor pressure management apparatus of a fuel system supplying fuel to an internal combustion engine, the fuel vapor pressure management apparatus performing leak detection on a headspace of the fuel system, performing excess negative pressure relief of the headspace, and performing excess positive pressure relief of the headspace, the apparatus comprising:

a housing defining an interior chamber;

a pressure operable device separating the interior chamber into first and second portions, the pressure operable device including a poppet movable along an axis and a seal adapted to cooperatively engage the poppet; and

a printed circuit board supported by the housing in the interior chamber, the printed circuit board including sensor adapted to be actuated by movement of the poppet along the axis.

2. The fuel vapor pressure management apparatus according to claim 1, wherein the housing comprises at least one latch movable between first and second configurations, the first configuration retains the printed circuit board with respect to the housing, and the second configuration releases the printed circuit board with respect to the housing.

3. The fuel vapor pressure management apparatus according to claim 2, wherein the housing comprises at least one post positioning the printed circuit board with respect to the housing.

4. The fuel vapor pressure management apparatus according to claim 3, wherein the printed circuit board in the first configuration is retained contiguously between the at least one latch and the at least one post.

5. The fuel vapor pressure management apparatus according to claim 4, wherein the at least one latch comprises a plurality of latches, and the at least one post comprises a plurality of posts.

6. The fuel vapor pressure management apparatus according to claim 2, wherein the at least one post comprises a centered post contiguously engaging the printed circuit board and aligned with the sensor.
7. The fuel vapor pressure management apparatus according to claim 6, wherein the centered post and the sensor are aligned along the axis.
8. The fuel vapor pressure management apparatus according to claim 2, wherein the printed circuit board is interchangeable with a substitute printed circuit board.
9. The fuel vapor pressure management apparatus according to claim 8, wherein the printed circuit board comprises a first width, a first length, and a first axial thickness, the substitute printed circuit board comprises a second width, a second length, and a second axial thickness; and
wherein the first and second widths are substantially equal, the first and second lengths are unequal, and the first and second axial thicknesses are substantially equal.
10. The fuel vapor pressure management apparatus according to claim 1, wherein the sensor comprises at least one of a contact switch and a proximity sensor.
11. The fuel vapor pressure management apparatus according to claim 10, wherein the contact switch is adapted to be contiguously engaged by the poppet.
12. The fuel vapor pressure management apparatus according to claim 1, wherein the printed circuit board comprises a plurality of electrical components that include the sensor.
13. The fuel vapor pressure management apparatus according to claim 12, wherein the printed circuit board comprises a plurality of electrically conductive paths that electrically couple the plurality of electrical components.
14. A method of assembling a fuel vapor pressure management apparatus of a fuel system supplying fuel to an internal combustion engine, the fuel vapor pressure management apparatus performing leak detection on a headspace of the fuel system, performing excess negative pressure relief of the headspace, and performing excess positive pressure relief of the headspace, the method comprising:

providing first and second housing parts, the first and second housing portions are adapted to cooperatively engage one another so as to form a housing that defines an interior chamber;

locating within the first housing part a printed circuit board; and

sandwiching between the first and second housing parts a pressure operable device separating the interior chamber into first and second portions.

15. The method according to claim 14, wherein the providing the first housing part comprises forming at least one latch adapted to retain with respect to the first housing part the printed circuit board during the locating.

16. The method according to claim 15, wherein the providing the first housing part comprises forming at least one post adapted to position with respect to the first housing part the printed circuit board during the locating.

17. The method according to claim 16, wherein the locating comprises the at least one latch and the at least one post contiguously retaining the printed circuit board with respect to the first housing part.

18. The method according to claim 15, further comprising:
interchanging the printed circuit board and a substitute printed circuit board.

19. The method according to claim 18, wherein the interchanging comprises removing the printed circuit board from the first housing part, and installing the substitute printed circuit board.

20. The method according to claim 19, wherein the removing comprises moving the at least one latch to a first configuration releasing the printed circuit board, and the installing comprises moving the at least one latch to a second configuration retaining the substitute printed circuit board.

21. The method according to claim 18, the printed circuit board comprises a first width, a first length, and a first thickness, the substitute printed circuit board comprises a second width, a second length, and a second thickness; and

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wherein the first and second widths are substantially equal, the first and second lengths are unequal, and the first and second thicknesses are substantially equal.